

Inventor: Ronald Highsmith
Serial No: 09/855,480
Art Unit: 1724

Honeywell Docket No. H0001323
Bingham Docket No. 55-003-001

REMARKS

35 USC §102

Claim 1 is herein rejected under 35 USC §102(b) as being anticipated by O'Donnell (US 3,942,970). The Examiner also seems to refer to the combination of O'Donnell and JP 110570-1997, which would be an improper combination of references under a 102(b) rejection, since "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) The Applicant respectfully disagrees. The Applicant will discuss both the O'Donnell and JP 110570-1997 references individually with respect to anticipation and in combination with respect to obviousness.

Claim 1 recites: "A beneficiated sludge solids composition characterized by its ability to reduce ammonia emissions, the composition comprising: digested municipal sewage sludge containing carbonate or carbon dioxide, ammonium sulfate, mineral acid, and phosphate salt; wherein the acid causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized." (emphasis added)

O'Donnell teaches an apparatus for and a process of treating sludge filter cake and the granular product thereof which comprises reducing the particle size and moisture content of the sludge cake and sterilizing the sludge cake by contacting the sludge cake by contacting the sludge cake with N-methylol-urea solution. (see Abstract) O'Donnell goes on to state in Column 2, lines 25-57 that urea and formaldehyde are reacted to form a pre-polymer N-methylol-urea solution, whereby the solution is then reacted with the sludge as specified by the practice of the invention described therein. O'Donnell states in Column 3, lines 3-29 that a hydrogen ion source is required to convert the HCOH to methylene groups in the polymerization step that involves the urea-formaldehyde pre-polymer. O'Donnell states that either a strong mineral acid or ammonium salts may be added to the pre-polymer to control the introduction of hydrogen ion and for, in the case of the ammonium salts,

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Both Add Acid.
Why not CO₂ or CO₃
decomposed in both?

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formation of hexamethylene tetramine. There is no indication in O'Donnell that the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. O'Donnell clearly states that the acid is used to control polymerization of the urea-formaldehyde pre-polymer. Therefore, it can be safely assumed, after a fair reading of O'Donnell, that if the pre-polymer were not being utilized in the treatment of sewage sludge, that the strong mineral acid or the ammonium salt would not be necessary, given that they are introduced solely for the benefits of controlling the introduction of hydrogen ion in the pre-polymer polymerization reaction. Furthermore, there is no indication from O'Donnell that strong mineral acids and ammonium salts can be combined and introduced into the system described by O'Donnell, whereby the acid used would cause decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. **O'Donnell clearly states that one of either the strong mineral acid or the ammonium salt should be added, but not both.**

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In addition, O'Donnell does not teach all of the claimed elements of the present application. As mentioned earlier, "anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention "arranged as in the claim". *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)).

O'Donnell does not teach a composition that comprises at least all of the following: a) digested municipal sewage sludge containing carbonate or carbon dioxide; b) ammonium sulfate; c) mineral acid; and d) phosphate salt. Second, O'Donnell doesn't teach a composition described above, wherein the acid causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. Based on this argument, along with others such as that discussed above, O'Donnell does not anticipate claim 1 of the present application because O'Donnell is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 1. Claim 1 is therefore allowable as not being anticipated by O'Donnell.

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JP 110570-1997 discloses an organic fertilizer manufacture method that utilizes treating the sewage sludge with an acidic solution followed by drying to reduce ammonia evolution and to retain the effective nitrogen. There is no indication in JP 110570-1997 that ammonium sulfate or phosphate salt should be added to the acidic solution, because the reference clearly states that controlling the pH by addition of an acidic solution followed by drying are the only method steps and additives needed to treat the sludge described therein. Furthermore, there is no indication from JP 110570-1997 that ammonium sulfate and phosphate salt can be combined and introduced into the acidic system, whereby the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized.

In addition, JP 110570-1997 does not teach all of the claimed elements of the present application. As mentioned earlier, "anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention "arranged as in the claim". *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). JP 110570-1997 does not teach a composition that comprises at least all of the following: a) digested municipal sewage sludge containing carbonate or carbon dioxide; b) ammonium sulfate; c) mineral acid; and d) phosphate salt. Second, JP 110570-1997 doesn't teach a composition described above, wherein the acid causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. Based on this argument, along with others such as that discussed above, JP 110570-1997 does not anticipate claim 1 of the present application because this reference is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 1. Claim 1 is therefore allowable as not being anticipated by JP 110570-1997.

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35 USC §103

Claim 1 is rejected under 35 USC §102(b) as being anticipated by O'Donnell, as mentioned earlier, but it appears as though the Examiner is citing the combination of O'Donnell and JP 110570-1997 as reading against the present application, which sounds as though the Examiner is making a 103(a) rejection. Therefore, the Applicant will address this first, in order to expedite this matter. The Applicant also respectfully disagrees.

Claim 1 recites: "A beneficiated sludge solids composition characterized by its ability to reduce ammonia emissions, the composition comprising: digested municipal sewage sludge containing carbonate or carbon dioxide, ammonium sulfate, mineral acid; and phosphate salt; wherein the acid causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized." (emphasis added)

O'Donnell teaches an apparatus for and a process of treating sludge filter cake and the granular product thereof which comprises reducing the particle size and moisture content of the sludge cake and sterilizing the sludge cake by contacting the sludge cake by contacting the sludge cake with N-methylol-urea solution. (see Abstract) O'Donnell goes on to state in Column 2, lines 25-57 that urea and formaldehyde are reacted to form a pre-polymer N-methylol-urea solution, whereby the solution is then reacted with the sludge as specified by the practice of the invention described therein. O'Donnell states in Column 3, lines 3-29 that a hydrogen ion source is required to convert the HCOH to methylene groups in the polymerization step that involves the urea-formaldehyde pre-polymer. O'Donnell states that either a strong mineral acid or ammonium salts may be added to the pre-polymer to control the introduction of hydrogen ion and for, in the case of the ammonium salts, formation of hexamethylene tetramine. There is no indication in O'Donnell that the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. O'Donnell clearly states that the acid is used to control polymerization of the urea-formaldehyde pre-polymer. Therefore, it can be safely assumed, after a fair reading of O'Donnell, that if the pre-polymer were not being utilized in the treatment of sewage sludge, that the strong mineral acid and the ammonium salt would not be necessary, given that they are introduced solely for the benefits of

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controlling the introduction of hydrogen ion in the pre-polymer polymerization reaction. Furthermore, there is no indication from O'Donnell that strong mineral acids and ammonium salts can be combined and introduced into a system, whereby the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. O'Donnell clearly states that one of either the strong mineral acid or the ammonium salt should be added, but not both.

JP 110570-1997 discloses an organic fertilizer manufacture method that utilizes treating the sewage sludge with an acidic solution followed by drying to reduce ammonia evolution and to retain the effective nitrogen. There is no indication in JP 110570-1997 that ammonium sulfate or phosphate salt should be added to the acidic solution, because the reference clearly states that controlling the pH by addition of an acidic solution followed by drying is the only thing needed to treat the sludge described therein. Furthermore, there is no indication from JP 110570-1997 that ammonium sulfate and phosphate salt can be combined and introduced into the acidic system, whereby the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized.

One of ordinary skill in the art of sewage chemistry would not be able to read JP 110570-1997 and O'Donnell and see that they could possibly be combined to give the present application. First, JP 110570-1997 does not suggest that any other additives are necessary past an acidic solution, which the reference describes as sulfuric acid. Second, the O'Donnell reference clearly states that a pre-polymer that is utilized to form a urea-formaldehyde polymer with the sewage sludge is necessary to properly treat the sewage sludge. Ammonium sulfate and mineral acids are only added individually (not in combination with one another) to control hydrogen ion introduction. There is no teaching or suggestion in O'Donnell or JP 110570-1997 that a composition can be formed that comprises at least all of the following: a) digested municipal sewage sludge containing carbonate or carbon dioxide; b) ammonium sulfate; c) mineral acid; and d) phosphate salt. Second, neither O'Donnell nor JP 110570-1997 teaches a composition described above, wherein the acid causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. There is no reason to combine the references mentioned above in this case to produce the claims or details of the present application. Therefore, claim 1 is allowable as being patentable over the combination of O'Donnell and JP 110570-1997, since there is no motivation to combine the references, and second, even if you did

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combine the references, the combination does not disclose the present application.

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The remainder of the references cited by the Examiner, including Rundell (US 3,853,616); Weissenberg (US 6,358,511) and Jacob (US 4,925,571) with respect to independent claim 1 and the remaining dependent claims 2-11, appear to rely on the assumption that the O'Donnell reference precludes patentability of claim 1 of the present application. As shown earlier, the O'Donnell reference does not preclude the patentability of the present application because O'Donnell teaches an apparatus for and a process of treating sludge filter cake and the granular product thereof which comprises reducing the particle size and moisture content of the sludge cake and sterilizing the sludge cake by contacting the sludge cake by contacting the sludge cake with N-methylol-urea solution. (see Abstract) O'Donnell goes on to state in Column 2, lines 25-57 that urea and formaldehyde are reacted to form a pre-polymer N-methylol-urea solution, whereby the solution is then reacted with the sludge as specified by the practice of the invention described therein. O'Donnell states in Column 3, lines 3-29 that a hydrogen ion source is required to convert the HCOH to methylene groups in the polymerization step that involves the urea-formaldehyde pre-polymer. O'Donnell states that either a strong mineral acid or ammonium salts may be added to the pre-polymer to control the introduction of hydrogen ion and for, in the case of the ammonium salts, formation of hexamethylene tetramine. There is no indication in O'Donnell that the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. O'Donnell clearly states that the acid is used to control polymerization of the urea-formaldehyde pre-polymer. Therefore, it can be safely assumed, after a fair reading of O'Donnell, that if the pre-polymer were not being utilized in the treatment of sewage sludge, that the strong mineral acid or the ammonium salt would not be necessary, given that they are introduced solely for the benefits of controlling the introduction of hydrogen ion in the pre-polymer polymerization reaction. Furthermore, there is no indication from O'Donnell that strong mineral acids and ammonium salts can be combined and introduced into a system, whereby the acid used causes decomposition of the carbonate or carbon dioxide so that ammonia emissions are minimized. O'Donnell clearly states that one of either the strong mineral acid or the ammonium salt should be added, but not both. Therefore, claim 1 is allowable as being patentable over O'Donnell, and thus, all of the dependent claims are allowable as being patentable

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over O'Donnell and in addition as being patentable over all of the above-cited references, since they are all cited as against the dependent claims, which contain all of the provisions of independent claim 1.

REQUEST FOR ALLOWANCE

Claims 1-11 are pending in this application. The applicants request allowance of all pending claims.

Respectfully submitted,
Bingham McCutchen, LLP

Dated: _____

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